

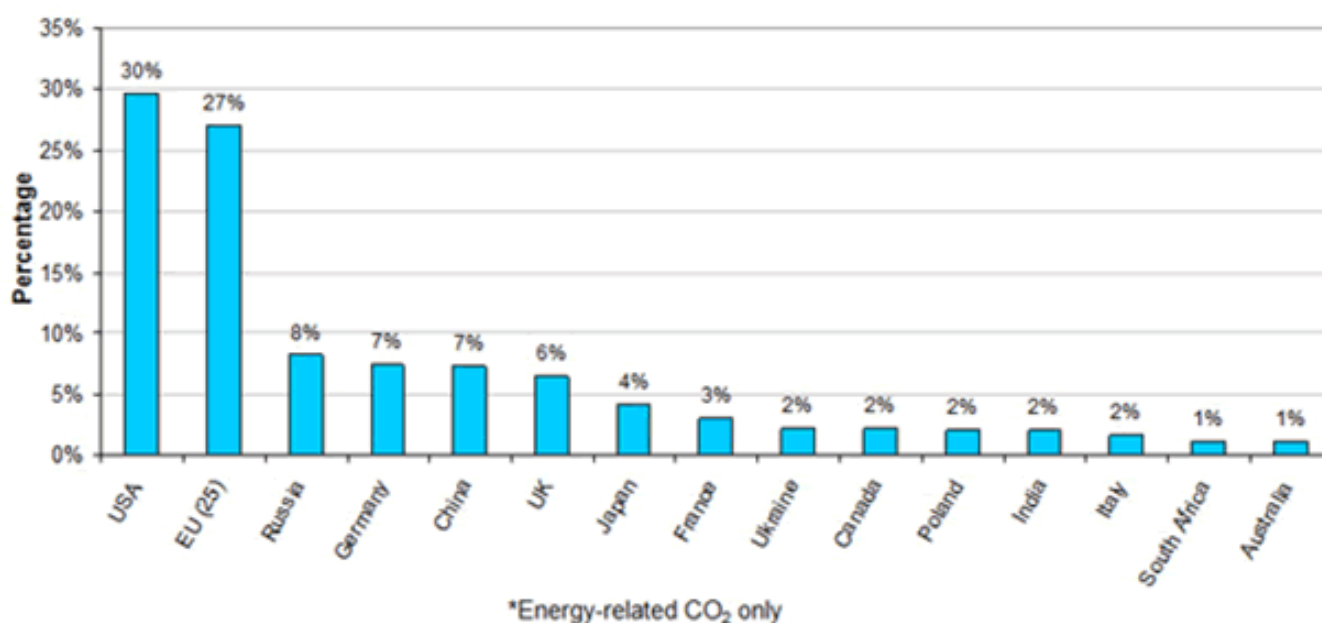
Data Analysis for CO2 Emissions

Teacher Directions

This task is designed to be suitable as a practice for database questions or as a practice for concluding and evaluation skills for lab activities. It is suitable to be done as a class activity, group activity or individual assignment. Some students may have difficulty with the vocabulary term relative contributions and would likely benefit from a definition or the opportunity to research this term.

Student directions

Cumulative CO₂ Emissions* (1850-2000)



Secondary Source: <http://www.pewclimate.org/facts-and-figures/international>
Figure 5C

Table 1: Population of Canada, Russia, The United States and China in 2000 according to the US Census Bureau (<http://www.census.gov/ipc/www/idb/country.php>)

Country	Population
Canada	31,100,000
Russia	146,710,000
United States	282,172,000
China	1,263,638,000

The command term, **calculate** requires a numerical answer showing the relevant stages in the working out of this answer. **Discuss** requires you to give an account including, where possible, a range of arguments for and against the relative importance of various factors, or comparisons of alternate hypotheses.

1. **Calculate** the total contribution of North American countries to the cumulative emissions of CO₂. Show your work and include units.

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2. **Discuss** the differences in the relative contributions of the United States, Canada, Russia and China to the cumulative CO2 emissions worldwide.

Support material

Markschemes/marketing notes:

1. Calculate the total contribution of North American countries to the cumulative emissions of CO2. Show your work and include units.

United States 30% CO2 emissions

Canada 2% CO2 emissions

Total for N.American countries $30\% + 2\% = 32\%$ CO2 emissions

2. Discuss the differences in the relative contributions of the United States, Canada, Russia and China to the cumulative CO2 emissions worldwide. (4 marks)

- Canada and the US have similar relative contributions if you consider their populations
- Both Russia and China have much lower rates of contributions than Canada or United States considering their population size
- Russia and China may have a less industrialized country/population than the US
- Russia and Canada are similar sized countries and have similar climate but Russia has four times the cumulative CO2 contribution
- China has about ten times the population of the US but has approximately 23% of the cumulative CO2 contributions of the US
- US has developed faster than Russia and China over the past 150 years and has produced much greater levels of CO2 as a result
- Other reasonable answers

Subject:

Biology

DP Component & Criteria:

Data-Based Questions/Paper 2

Component type:

Internal

MYP Criteria:

Group 4 / Sciences